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EXAMINER

PAN, D

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ART UNIT PAPER NUMBER

7

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2302

DATE MAILED:

08/17/94

This is a communication from the examiner in charge of your application.  
COMMISSIONER OF PATENTS AND TRADEMARKS

This application has been examined  Responsive to communication filed on May 4 98  This action is made final.

A shortened statutory period for response to this action is set to expire three (3) month(s), \_\_\_\_\_ days from the date of this letter.  
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

- Notice of References Cited by Examiner, PTO-892.
- Notice of Draftsman's Patent Drawing Review, PTO-948.
- Notice of Art Cited by Applicant, PTO-1449.
- Notice of Informal Patent Application, PTO-152.
- Information on How to Effect Drawing Changes, PTO-1474.
- \_\_\_\_\_

Part II SUMMARY OF ACTION

1.  Claims 1-3, 5, 6, 8-52 are pending in the application.

Of the above, claims 4, 7 are withdrawn from consideration.

2.  Claims 4, 7 have been cancelled.

3.  Claims \_\_\_\_\_ are allowed.

4.  Claims 1-3, 5-6, 8-52 are rejected.

5.  Claims \_\_\_\_\_ are objected to.

6.  Claims \_\_\_\_\_ are subject to restriction or election requirement.

7.  This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.

8.  Formal drawings are required in response to this Office action.

9.  The corrected or substitute drawings have been received on \_\_\_\_\_. Under 37 C.F.R. 1.84 these drawings are  acceptable;  not acceptable (see explanation or Notice of Draftsman's Patent Drawing Review, PTO-948).

10.  The proposed additional or substitute sheet(s) of drawings, filed on \_\_\_\_\_, has (have) been  approved by the examiner;  disapproved by the examiner (see explanation).

11.  The proposed drawing correction, filed \_\_\_\_\_, has been  approved;  disapproved (see explanation).

12.  Acknowledgement is made of the claim for priority under 35 U.S.C. 119. The certified copy has  been received  not been received  been filed in parent application, serial no. \_\_\_\_\_; filed on \_\_\_\_\_.

13.  Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.

14.  Other —see attached.

EXAMINER'S ACTION

Art Unit: 2302

1. Claims 1-3,5-6,8-25 remain for examination. Claims 26 -52 are newly added.

The text of those sections not included in this action can be found in a prior Office action.

2. Claim 1 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As to claim 1, the structural relationship between the means for performing calculation and means for displaying is not clear.

The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

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3. Claims 1-3,5-6,8-52 are rejected under 35 U.S.C. § 103 as being unpatentable over Inagaki (4,578,811) in view of Tan 4,141,073).

As to the new claims 26,49, Tan's pen was also usable to accept marks traced by his pen on any surface to record the movement of his pen(e.g. col.1 lines 44-52);

As to claims 27-29,39,50-52, see discussions in e) and g) below.

As to claim 30, Inagaki also included a display [2] for displaying result of the calculation.

As to claims 31,32, Inagaki's numeral and characters also included symbols and digits (e.g. see col.3 lines 2-7).

As to claim 33, Inagaki did not explicitly show that his system can recognize the proximity of the digits to one another on the electronic surface as claimed. However, Inagaki was able to recognize the relative positions of the strokes of a characters or numerals(e.g. see col.6 lines 28-50). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to recognize the proximity of the digits as claimed because a plurality of characters was also recognizable as a single character in Inagaki by the relative positions of the characters(e.g. see col.13 lines 35-64), and because recognizing the proximity of the digits or characters would allow Inagaki's handwritten recognition to be more versatile.

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As to claim 34, Tan's pen was also used to trace his arithmetical operations in any directions, and was able to get the correct result because it was used as an ordinary pen.

As to claims 35-37, see discussions in c) below.

As to claim 38 see discussions in d) below.

As to claims 40-48, see discussions and reasons for obviousness in the last page of the previous action sent on 02/02/94.

The rejections are maintained and incorporated by reference as set forth in the last office action.

Applicant's arguments filed on May 04 1994 have been fully considered but are not persuasive.

4. In the remarks, applicants argued in substance that :
  - a) Inagaki and Tan did not display entire mathematical expression on the calculator as it is entered by the user;
  - b) claims 11 and 13 included the novel feature of recognizing mathematical expressions traced horizontally and vertically on the electronic input surface;
  - c) claims 12, 14, 34, 36, included the horizontal result line;
  - d) claims 15, 37 included animating mathematical expressions on the electronic surface;
  - e) claims 16 and 38 included accepting corrections in the mathematical expressions;

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f) claims 17-25 and 39-47 included the feature of logically linking together a plurality of mathematical expressions;  
g) claims 27-29 and 49-51 included the feature of accepting insertions, deletions, and erasures in the mathematical expressions.

As to a), Inagaki's did not explicitly show that his mathematical expression was displayed entirely on the display. However, Inagaki taught that in his handwriting mode, the numerals 0-9, alphabetic characters A-Z, and the arithmetic symbols +, -, x, and - may be relatively displayed by tracing them on the 5x6 key array finger actuation section (e.g. see col.3 lines 4-9). Therefore, if there was an expression  $5+2 =$  written with the finger (e.g. see col.3 lines 9-13), the operators [+] [=] and the operands [5] [2] would be indicated on the finger actuation section, and the answer would be sent to a display section 2. It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to display all mathematical operands and operators as claimed because Inagaki's actuation section was also applicable for displaying the entire numerical and operators.

As to c), neither Inagaki nor Tan did not specifically teach the horizontal result line as claimed. However, Tan taught that by the use of his pen and by tracing strokes of numerals and

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calculating symbols, a result of the arithmetical operations will be obtained and displayed (e.g. see col.1 lines 44-51). The designated strokes of the numerals and the calculating functions are nothing but the numbers and the operators. In Tan's device, the operators included at least the equal sign [=] to obtain the result. Tan's equal sign had the same purpose as any other result symbols to obtain arithmetical results. Therefore, it would have been obvious to one of ordinary skill in the art to include the result line as claimed because the particular symbols , such as equal sign, horizontal line, or an arrow, do not affect the performance of Tan's pen to recognize the designated symbols.

As to d), the feature of animating the mathematical expression has no inventive feature at all because it was already well known in the art at the time the claimed invention was made to "animating" any alphanumerical characters and symbols by selectively highlighting the displayed characters in a text system or symbols in a image system by users, and the operators and operands used in a mathematical expression were nothing but the alphanumerical characters and the symbols.

As to e),g), Tan also included the feature of erasures and deletions by disclosing the operation of eliminating [E] (e.g. see col.3 lines 8-13).

As to f), see discussions and references cited in last page in the previous Office action which was mailed on 02/02/94.

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**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. § 1.136(a).

A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS FINAL ACTION IS SET TO EXPIRE THREE MONTHS FROM THE DATE OF THIS ACTION. IN THE EVENT A FIRST RESPONSE IS FILED WITHIN TWO MONTHS OF THE MAILING DATE OF THIS FINAL ACTION AND THE ADVISORY ACTION IS NOT MAILED UNTIL AFTER THE END OF THE THREE-MONTH SHORTENED STATUTORY PERIOD, THEN THE SHORTENED STATUTORY PERIOD WILL EXPIRE ON THE DATE THE ADVISORY ACTION IS MAILED, AND ANY EXTENSION FEE PURSUANT TO 37 C.F.R. § 1.136(a) WILL BE CALCULATED FROM THE MAILING DATE OF THE ADVISORY ACTION. IN NO EVENT WILL THE STATUTORY PERIOD FOR RESPONSE EXPIRE LATER THAN SIX MONTHS FROM THE DATE OF THIS FINAL ACTION.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel H. Pan whose telephone number is (703) 305 9696.

6. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305 9600.

DP/07/22/94



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